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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/037,661	01/04/2002	Chiping Chen	MIT-132 (5473/145)	6530
21323	7590	11/10/2003	EXAMINER	
TESTA, HURWITZ & THIBEAULT, LLP HIGH STREET TOWER 125 HIGH STREET BOSTON, MA 02110			NGUYEN, PATRICIA T	
			ART UNIT	PAPER NUMBER
			2817	

DATE MAILED: 11/10/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/037,661	Applicant(s) CHEN ET AL.	
	Examiner Patricia T. Nguyen	Art Unit 2817	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                  | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). ____   |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>3</u> . | 6) <input type="checkbox"/> Other: _____                                    |

### DETAILED ACTION

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2 are rejected under 35 U.S.C. 102(b) as being anticipated by White, U.S. Patent # 6,452,713 B1.

Figs. 2A, 2B of White discloses a tunable photonic bandgap structure comprising: photonic crystals 110, 112, 114, 116 having elements 120, 122, 124, 126 can be read as at least one member is movable (see spec. col. 4, lines 58-66).

Claims 3, 4 are rejected under 35 U.S.C. 102(b) as being anticipated by Koops et al., U.S. Patent # 5,973,823.

Fig. 1 of Koops et al. discloses a tunable photonic bandgap structure comprising: crystals 2 can be read as at least one member is temperature controlled (see spec. col. 2, lines 52-57; col. 3, lines 7-16; col. 4, lines 19-27).

Although Koops et al. does not mention about temperature controlled for the crystal members, instead he controlled them through electric field effects but inherently, electric field effects generate heat during the process and it is the same as temperature controlled effects.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-3, 5-7 are rejected under 35 U.S.C. 102(e) as being anticipated by  
Sievenpiper et al., U.S. Patent # 6,538,621 B1.

Figs. 6 and 11 of Sievenpiper et al. discloses a tunable surface comprising:  
plated metal vias 14, capacitor plates 10, and variable capacitors 18 can be read as at  
least one member is movable and/or temperature controlled (see spec. col. 4, lines 34-  
43 and lines 61-64).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all  
obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 8 -12 are rejected under 35 U.S.C. 103(a) as being unpatentable over  
Sievenpiper et al., U.S. Patent # 6,538,621 B1 in view of Murakowski et al., U.S. Patent  
# 6,603,558 B2.

Although Sievenpiper et al. does not mention about a vacuum electron device  
microwave generator to generate microwave radiation having plurality of modes,  
Murakowski et al. teaches a device to generate microwave radiation. Therefore, it  
would have been obvious at the time the invention was made to a person having

ordinary skill in the art to use the device to generate microwave radiation of Murakowski et al. with the tunable photonic bandgap structure of Sievenpiper et al. in order to have a practical use for the tunable photonic bandgap structure device of Sievenpiper et al.

Claims 9 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over White, U.S. Patent # 6,452,713 B1 in view of Murakowski et al., U.S. Patent # 6,603,558 B2.

Although White does not mention about a vacuum electron device microwave generator to generate microwave radiation having plurality of modes, Murakowski et al. teaches a device to generate microwave radiation. Therefore, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to use the device to generate microwave radiation of Murakowski et al. with the tunable photonic bandgap structure of White in order to have a practical use for the tunable photonic bandgap structure device of White.

Claims 8, 11, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koops et al., U.S. Patent # 5,973,823 in view of Kim et al., U.S. Patent # 6,535,665 B1.

Although Koops et al. does not mention about a vacuum electron device microwave generator to generate microwave radiation having plurality of modes, Kim et al. teaches in Figs. 9, 20B a device to generate microwave radiation and also it is well known in the art to use a vacuum electron device microwave generator to generate

microwave radiation having plurality of modes in order to use with the tunable photonic bandgap structure of Koops et al. since this is a matter of design choice.

Claims 9 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over White, U.S. Patent # 6,452,713 B1 in view of Kim et al., U.S. Patent # 6,535,665 B1.

Although White does not mention about a vacuum electron device microwave generator to generate microwave radiation having plurality of modes, Kim et al. teaches in Figs. 9, 20B a device to generate microwave radiation and also it is well known in the art to use a vacuum electron device microwave generator to generate microwave radiation having plurality of modes in order to use with the tunable photonic bandgap structure of White since this is a matter of design choice.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patents # 6,285,020 B1 of Kim et al. and # 6,134,043 of Johnson et al. contain some limitations of the claimed invention.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patricia T. Nguyen whose telephone number is (703) 308-1927. The examiner can normally be reached on 6:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Pascal can be reached on (703) 308-4909. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

PTN

October 28, 2003

**PATRICIA NGUYEN**  
**PRIMARY EXAMINER**

*Patricia Nguyen*